

this paragraph do not apply to a securement system in which the tiedown assembly consists of steel strapping or to a tiedown assembly which is not required by the rules in this section.

(49 U.S.C. 304, 1655; 49 CFR 1.48(b) and 301.60)

[38 FR 23522, Aug. 31, 1973, as amended at 47 FR 47837, Oct. 28, 1982; 59 FR 34718, July 6, 1994; 59 FR 43898, Aug. 25, 1994]

§ 393.104 Blocking and bracing.

(a) *Protection against longitudinal movement.* When a motor vehicle carries cargo that is not firmly braced against a front-end structure that conforms to the requirements of § 393.106, the cargo must be secured so that, when the vehicle decelerates at a rate of 20 feet per second per second, the cargo will remain on the vehicle and will not penetrate the vehicle's front-end structure.

(b) *Protection against lateral movement.* When a vehicle carries cargo that may shift sideways in transit, the cargo must either be securely blocked or braced against the sides, sideboards, or stakes of the vehicle or be secured by devices that conform to the requirements of paragraph (b)(2), (b)(3), or (b)(4) of § 393.100.

(c) *Effective date.* This section is effective on October 1, 1973.

[38 FR 23522, Aug. 31, 1973, as amended at 38 FR 25183, Sept. 12, 1973]

§ 393.106 Front-end structure.

(a) *General rule.* (1) Except as provided in paragraph (g) of this section, every cargo-carrying motor vehicle must be equipped with a headerboard or similar device of sufficient strength to prevent load shifting and penetration or crushing of the driver's compartment.

(2) On and after the effective dates specified in paragraph (h) of this section, every cargo-carrying motor vehicle must have a front-end structure that conforms to the rules in this section.

(b) *Location.* The front-end structure must be located between the vehicle's cargo and the vehicle's driver.

(c) *Height and width.* The front-end structure must extend either to a height of 4 feet above the floor of the vehicle or to a height at which it blocks forward movement of any item

of cargo being carried on the vehicle, whichever is lower. The front-end structure must have a width which is at least equal to the width of the vehicle or which blocks forward movement of any item of cargo being transported on the vehicle, whichever is narrower.

(d) *Strength.* The front-end structure must be capable of withstanding the horizontal forward static load specified in either paragraph (d) (1) or (2) of this section.

(1) For a front-end structure less than 6 feet in height, a horizontal forward static load equal to one half ($\frac{1}{2}$) of the weight of the cargo being transported on the vehicle uniformly distributed over the entire portion of the front-end structure that is within 4 feet above the vehicle's floor or that is at or below a height above the vehicle's floor at which it blocks forward movement of any item of the vehicle's cargo, whichever is less.

(2) For a front-end structure 6 feet in height or higher, a horizontal forward static load equal to four-tenths (0.4) of the weight of the cargo being transported on the vehicle uniformly distributed over the entire front-end structure.

(e) *Penetration resistance.* The front-end structure must be designed, constructed and maintained so that it is capable of resisting penetration by any item of cargo that contacts it when the vehicle decelerates at a rate of 20 feet per second per second. The front-end structure must have no aperture large enough to permit any item of cargo in contact with the structure to pass through it.

(f) *Substitute devices.* The requirements of this section may be met by the use of devices performing the same functions as a front-end structure, if the devices are at least as strong as, and provide protection against shifting cargo at least equal to, a front-end structure which conforms to those requirements.

(g) *Exemptions.* The following motor vehicles are exempt from the rules in this section:

(1) A vehicle which is designed and used exclusively to transport other vehicles, if each vehicle it transports is securely tied down by devices that conform to the requirements of § 393.102.

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(2) A pole trailer or semitrailer being towed by a truck tractor that is equipped with a front-end structure that conforms to the rules in this section.

(3) A full trailer being towed by a vehicle that is equipped with a front-end structure that conforms to the requirements of this section for a front-end structure.

(4) A full trailer being towed by a vehicle that is loaded in such a manner that the cargo on the towing vehicle conforms to the requirements of this section for a front-end structure.

(5) The rules in paragraphs (d) and (e) of this section do not apply to a motor vehicle manufactured before January 1, 1974.

(h) *Effective dates.* Cargo-carrying motor vehicles which are not exempted by paragraph (g) of this section must conform to the rules in this section as follows:

If the vehicle was manufactured—	It must conform to the rules in paragraph—	On and after—
Before Jan. 1, 1974.	(a), (b), and (f)	October 1, 1973 or the date it was manufactured, whichever is later.
Before Jan. 1, 1974.	(c)	January 1, 1975.
On or after Jan. 1, 1974.	(a) through (f) inclusive.	The date it was manufactured.

Paragraphs (d) and (e) of this section do not apply to a motor vehicle that was manufactured before January 1, 1974.

Subpart J—Frames, Cab and Body Components, Wheels, Steering, and Suspension Systems

SOURCE: 53 FR 49402, Dec. 7, 1988, unless otherwise noted.

§ 393.201 Frames.

(a) The frame of every bus, truck, and truck tractor shall not be cracked, loose, sagging or broken.

(b) Bolts or brackets securing the cab or the body of the vehicle to the frame must not be loose, broken, or missing.

(c) The frame rail flanges between the axles shall not be bent, cut or notched, except as specified by the manufacturer.

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(d) All accessories mounted to the truck tractor frame must be bolted or riveted.

(e) No holes shall be drilled in the top or bottom rail flanges, except as specified by the manufacturer.

(f) Field repairs are allowed.

§ 393.203 Cab and body components.

(a) The cab compartment doors or door parts used as an entrance or exist shall not be missing or broken. Doors shall not sag so that they cannot be properly opened or closed. No door shall be wired shut or otherwise secured in the closed position so that it cannot be readily opened. **EXCEPTION:** When the vehicle is loaded with pipe or bar stock that blocks the door and the cab has a roof exit.

(b) Bolts or brackets securing the cab or the body of the vehicle to the frame shall not be loose, broken, or missing.

(c) The hood must be securely fastened.

(d) All seats must be securely mounted.

(e) The front bumper must not be missing, loosely attached, or protruding beyond the confines of the vehicle so as to create a hazard.

§ 393.205 Wheels.

(a) Wheels and rims shall not be cracked or broken.

(b) Stud or bolt holes on the wheels shall not be elongated (out of round).

(c) Nuts or bolts shall not be missing or loose.

§ 393.207 Suspension systems.

(a) *Axles.* No axle positioning part shall be cracked, broken, loose or missing. All axles must be in proper alignment.

(b) *Adjustable axles.* Adjustable axle assemblies shall not have locking pins missing or disengaged.

(c) *Leaf springs.* No leaf spring shall be cracked, broken, or missing nor shifted out of position.

(d) *Coil springs.* No coil spring shall be cracked or broken.

(e) *Torsion bar.* No torsion bar or torsion bar suspension shall be cracked or broken.

(f) *Air suspensions.* The air pressure regulator valve shall not allow air into